

IN THE CLAIMS

The status of the claims as presently amended is as follows:

1. (Currently amended) An auger type ice making machine provided with a freezing cylinder which has an evaporator on its outer peripheral surface and into which water used for making ice is supplied, an ice-scraping auger for scraping ice formed on an inner surface of the freezing cylinder, an auger motor for driving the ice-scraping auger, a freezing apparatus which includes a compressor, a condenser and the evaporator and circulates refrigerant discharged from the compressor through the condenser and the evaporator to cool the freezing cylinder, and a motor which drives the compressor, the auger type ice making machine comprising:

pressure regulating means for keeping the pressure of refrigerant to be supplied to the evaporator at a specified low pressure;

an outlet temperature sensor for sensing refrigerant temperature at an outlet of the evaporator; and

motor controlling means for controlling the rotational speed of the motor that drives the compressor in response to the refrigerant temperature at the outlet of the evaporator sensed by the outlet temperature sensor and thereby performing feedback control such that the refrigerant temperature at the outlet of the evaporator is kept at a specified refrigerant outlet temperature, resulting in the degree of superheat of refrigerant in the evaporator being kept at a predetermined constant value.

2. (Original) An auger type ice making machine according to claim 1, wherein the pressure regulating means comprises a constant pressure expansion valve which is interposed between the condenser and the evaporator, and whose opening is controlled and changed in response to the refrigerant pressure on a downstream side of the interposed position.

3. (Withdrawn) An auger type ice making machine according to claim 1, wherein the pressure regulating means comprises:

a variable control valve being interposed between the condenser and the evaporator; the opening of the variable control valve being electrically controlled and changed;

a pressure sensor for sensing refrigerant pressure at an inlet of the evaporator;
and

opening controlling means for controlling the opening of the variable control valve in response to the refrigerant pressure sensed by the pressure sensor and thereby keeping the pressure of refrigerant to be supplied to the evaporator at a specified low pressure.

4. (Withdrawn) An auger type ice making machine according to claim 1, wherein the pressure regulating means comprises:

a variable control valve being interposed between the condenser and the evaporator; the opening of the variable control valve being electrically controlled and changed;

an inlet temperature sensor for sensing refrigerant temperature at an inlet of the evaporator; and

opening controlling means for controlling the opening of the variable control valve in response to the refrigerant temperature sensed by the inlet temperature sensor and thereby keeping the pressure of refrigerant to be supplied to the evaporator at a specified low pressure.

5. (Previously presented) An auger type ice making machine according to claim 1, wherein

the freezing cylinder is placed vertically along the axis thereof, receives water for making ice at a lower part thereof and discharges scrapped ice from an upper part thereof;

the evaporator is provided on the outer peripheral surface of the freezing cylinder, ranging from the upper part to the lower part of the freezing cylinder; and

the inlet of the evaporator into which refrigerant flows is placed at the upper part of the freezing cylinder.

6. (Previously presented) An auger type ice making machine according to claim 1 further comprising:

an ambient temperature sensor for sensing ambient temperature; and
refrigerant outlet temperature change controlling means for decreasing the specified refrigerant outlet temperature as the sensed ambient temperature rises.

7. (Currently amended) An auger type ice making machine provided with a freezing cylinder which has an evaporator on its outer peripheral surface and into which water used for making ice is supplied, an ice-scraping auger for scraping ice formed on an inner surface of the freezing cylinder, an auger motor for driving the ice-scraping auger, a freezing apparatus which includes a compressor, a condenser and the evaporator and circulates refrigerant discharged from the compressor through the condenser and the evaporator to cool the freezing cylinder, and a motor which drives the compressor, the auger type ice making machine comprising:

pressure regulating means for keeping the pressure of refrigerant to be supplied to the evaporator at a specified low pressure;

an outlet temperature sensor for sensing refrigerant temperature at an outlet of the evaporator;

motor controlling means for controlling the rotational speed of the motor that drives the compressor in response to the refrigerant temperature at the outlet of the evaporator sensed by the outlet temperature sensor and thereby performing feedback control such that the refrigerant temperature at the outlet of the evaporator is kept at a specified refrigerant outlet temperature, resulting in the degree of superheat of refrigerant in the evaporator being kept at a predetermined constant value;

~~An auger type ice making machine according to claim 1 further comprising:~~

a water temperature sensor for sensing temperature of water to be supplied to the freezing cylinder; and

refrigerant outlet temperature change controlling means for decreasing the specified refrigerant outlet temperature as the sensed water temperature rises.

8. (Currently amended) An auger type ice making machine provided with a freezing cylinder which has an evaporator on its outer peripheral surface and into which water used for making ice is supplied, an ice-scraping auger for scraping ice formed on an inner surface of the freezing cylinder, an auger motor for driving the ice-scraping auger, a freezing apparatus which includes a compressor, a condenser and the evaporator and circulates refrigerant discharged from the compressor through the condenser and the evaporator to cool the freezing cylinder, and a motor which drives the compressor, the auger type ice making machine comprising:

pressure regulating means for keeping the pressure of refrigerant to be supplied to the evaporator at a specified low pressure;

an outlet temperature sensor for sensing refrigerant temperature at an outlet of the evaporator;

motor controlling means for controlling the rotational speed of the motor that drives the compressor in response to the refrigerant temperature at the outlet of the evaporator sensed by the outlet temperature sensor and thereby performing feedback control such that the refrigerant temperature at the outlet of the evaporator is kept at a specified refrigerant outlet temperature, resulting in the degree of superheat of refrigerant in the evaporator being kept at a predetermined constant value;

An auger type ice making machine according to claim 1 further comprising:

a current sensor for sensing current flowing into the auger motor; and

refrigerant outlet temperature change controlling means for increasing the specified refrigerant outlet temperature as the sensed current increases.

9. (Currently amended) An auger type ice making machine provided with a freezing cylinder which has an evaporator on its outer peripheral surface and into which water used for making ice is supplied, an ice-scraping auger for scraping ice formed on an inner surface of the freezing cylinder, an auger motor for driving the ice-scraping auger, a freezing apparatus which includes a compressor, a condenser and the evaporator and circulates refrigerant discharged from the compressor through the condenser and the evaporator to cool the freezing cylinder, and a motor which drives the compressor, the auger type ice making machine comprising:

pressure regulating means for keeping the pressure of refrigerant to be supplied to the evaporator at a specified low pressure;

an outlet temperature sensor for sensing refrigerant temperature at an outlet of the evaporator;

motor controlling means for controlling the rotational speed of the motor that drives the compressor in response to the refrigerant temperature at the outlet of the evaporator sensed by the outlet temperature sensor and thereby performing feedback control such that the refrigerant temperature at the outlet of the evaporator is kept at a specified refrigerant outlet temperature, resulting in the degree of superheat of refrigerant in the evaporator being kept at a predetermined constant value;
~~An auger type ice making machine according to claim 1 further comprising:~~

~~a torque sensor for sensing torque transmitted from the auger motor to the ice-scraping auger; and~~

~~refrigerant outlet temperature change controlling means for increasing the specified refrigerant outlet temperature as the sensed torque increases.~~

10. (Currently amended) An auger type ice making machine provided with a freezing cylinder which has an evaporator on its outer peripheral surface and into which water used for making ice is supplied, an ice-scraping auger for scraping ice formed on an inner surface of the freezing cylinder, an auger motor for driving the ice-scraping auger, a freezing apparatus which includes a compressor, a condenser and the evaporator and circulates refrigerant discharged from the compressor through the condenser and the evaporator to cool the freezing cylinder, and a motor which drives the compressor, the auger type ice making machine comprising:

pressure regulating means for keeping the pressure of refrigerant to be supplied to the evaporator at a specified low pressure;

an outlet temperature sensor for sensing refrigerant temperature at an outlet of the evaporator;

motor controlling means for controlling the rotational speed of the motor that drives the compressor in response to the refrigerant temperature at the outlet of the evaporator sensed by the outlet temperature sensor and thereby performing feedback control such that the refrigerant temperature at the outlet of the evaporator is kept at a specified refrigerant outlet temperature, resulting in the degree of superheat of refrigerant in the evaporator being kept at a predetermined constant value;
~~An auger type ice making machine according to claim 1 further comprising:~~

a distortion sensor for sensing distorted amount of the freezing cylinder; and
refrigerant outlet temperature change controlling means for increasing the
specified refrigerant outlet temperature as the sensed distorted amount increases.

11. (Previously presented) An auger type ice making machine according to
claim 1 further comprising:

a performance inputting device for inputting performance of the freezing
apparatus; and

refrigerant outlet temperature setting controlling means for setting the specified
refrigerant outlet temperature in accordance with the input performance.

12. – 20. Canceled

21. (Previously presented) An auger type ice making machine according to
claim 1, wherein

the specified refrigerant outlet temperature is defined by adding the constant
value predetermined as the degree of superheat to a temperature uniquely defined in
response to the specified low pressure for the refrigerant supplied to the evaporator.

22. – 29. (Canceled)